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Niacin Treatment of Mild-Moderate Alzheimer's Disease

Is daily niacin treatment safe and tolerable for people living with Alzheimer's?

Background
Niacin (also known as nicotinic acid) is a component of vitamin B3. Studies show that a dietary intake of niacin may be connected to a lower risk of Alzheimer's, and that niacin activates a protein called HCAR2 that is found in high levels in the brains of individuals with Alzheimer's. Niacin is a vitamin that is found over-the-counter, but also in an FDA-approved form that is used to manage lipids (fats) in the body; however, it has not been studied for use in individuals with Alzheimer's.

Research in genetically engineered Alzheimer's mouse models demonstrated that daily treatment with niacin activates microglia, the primary immune cells of the brain, and improves the clearance of beta-amyloid plaques and tau tangles, two hallmark brain changes associated with Alzheimer's. In addition, niacin treatment reduced nerve cell death and improved memory in the mice.

Research Plan
Based on these findings in mice, Dr. Jared Brosch and colleagues believe that using niacin to activate HCAR2 may be a safe and potentially therapeutic strategy for individuals with Alzheimer's. They will conduct a phase 2a clinical trial of FDA approved extended-release niacin in individuals with mild to moderate Alzheimer's. After 30 and 60 days of the treatment, the researchers will measure changes in biological markers (biomarkers) in the blood and cerebrospinal fluid (CSF, a biological fluid surrounding the brain and spinal cord) that indicate HCAR2 activation. The team will also measure cognitive and functional changes in the participants, as well as assess the tolerability of the treatment and any adverse effects including the monitoring of products that result from the breakdown or metabolism of niacin.

Impact
The study results may provide important information about the role of HCAR2 in Alzheimer's and the therapeutic potential of an already-available drug. The findings of this phase 2a clinical trial could serve as a foundation for further clinical trials testing niacin as a strategy to delay the progression of cognitive symptoms associated with Alzheimer's.